MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015 / 2016

PBC0016–BASIC COMPUTING AND PROGRAMMING

(Foundation in Engineering)

29 FEBRUARY 2016
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **FIVE** printed pages with **FOUR** questions.
2. Answer **ALL** questions.
3. Write your answers in the Answer Booklet.

QUESTION 1

(a) Describe the following categories of computers:

(i) Workstation
(ii) Microcomputer/ Personal Computer (PC)
(iii) Mobile Computing device

[6 marks]

(b) Ten seconds of audio is approximately 166 kB. Calculate the size of a file with three minutes of audio. Give your answer in MB.

[4 marks]

(c) State **TWO (2)** examples of input devices in each category below.
(i) Keyboard input
(ii) Pointing devices
(iii) Source data entry

[6 marks]

(d) Hard disk is a type of magnetic disk storage.
(i)Describe how data is stored on magnetic discs.
(ii)Define the term fragmentation when referring to hard disks. Explain what consequences there are when a disk is fragmented.
(iii)Given the size of a movie is 15 GB and the capacity of a backup storage X is 2.5MB. Calculate the number of X that is needed to copy the whole movie.

[2+ 4 + 3 marks]

Continued ....

QUESTION 2

(a) System software consists of the programs that control or maintain the operations of the computer and its devices. It can be generally categorized into two categories. Name the **TWO (2)** categories of system software and briefly describe each of them by giving an example for each category.

[6 marks]

(b) Differentiate between these three types of OS: Desktop OS, Server OS and Mobile OS in terms of its function by giving examples.

[6 marks]

(c) The process of starting or restarting a computer is called booting. Distinguish between a warm boot and a cold boot.

[4 marks]

(d) Nowadays, high speed networks enable the use of web applications as if it were an application within our PCs. With List **FOUR (4)** disadvantages of conventional standalone offline applications (eg. Microsoft Word) compared to web based applications.

[8 marks]

(e) Give an example of a nonvolatile memory in the system unit.

[1 mark]

QUESTION 3

(a) Discuss the **FOUR (4)** advantages and **FOUR (4)** disadvantages of using a wired network instead of wireless to connect to the Internet.

[8 marks]

(b) Describe these wireless network communication standards:

(i) Wi-Fi
(ii) Bluetooth
(iii)UWB
(iv)IrDA
(v) RFID

[10 marks]

(c) Describe Virtual Reality (VR). State a disadvantage of playing a video game in immersive VR rather than non-immersive VR.

[4 marks]

(d) If a pixel is represented using 16 bits, calculate the number of colors the pixel can display.

[2 marks]

(e) Describe anti-aliasing of a graphic.

[1 mark]

Continued ....

QUESTION 4

a) Determine whether the following variable names are valid in the C Programming language and state the reason if they are invalid.

i) char
ii) number
iii) 1Malaysia
iv) _six
v) %post
vi) $post

[6 marks]

b) Write the following expressions in C statements.

i) Declare an integer variable `a` and assign it a value of 10 upon declaration.
ii) If x is greater than or equal to 3, print the statement "This is true".
iii) Read the user's input to a character variable `b`. Assume variable `b` is already declared and initialized.

[6 marks]

c) Predict the outcome of the following program:

```
#include <stdio.h>

int main()
{
    int i;

    for (i=0;i<6;i++){
        if (i==5)
            printf("Count is now %d\n",i);

        if (i==6)
            printf("Count is now %d\n",i);

        if (i<4)
            printf("Tweedle-dee\n");
        else
            printf("Tweedle-dum\n");

    }

    return 0;
}
```

[5 marks]

Continued ....

d) Complete the following program in Figure 4(d)1 by filling in blanks indicated by numbers (i) to (vi). The program is written so that it uses a `for` loop to prompt a user to enter five numbers. After receiving all the input, it prints out the sum of the five numbers and how many of them are more than 10. Two sample outputs are as attached in Figure 4(d)2 and Figure 4(d)3.

```
i)_____ //include the necessary header

int main()
{
   int i,a, over=0, sum=0;

   for (i=0; ii)_____;i++) { //counter i runs from 0 to 5
      printf("Please enter a number:");
      iii)_____ //scan user's input into integer variable a

      if (a>10)
         iv)_____ //increase variable over by 1

v)_____// add user input to sum
   }

vi)_____//print the sum of all numbers entered.
   printf("There are %d numbers that are more than 10 entered.\n", over);
   return 0;
}
```

Figure 4(d)1

```
Please enter a number:10
Please enter a number:21
Please enter a number:8
Please enter a number:6
Please enter a number:30
The sum of all numbers entered is 75.
There are 2 numbers that are more than 10 entered.
```

Figure 4(d)2

```
Please enter a number:11
Please enter a number:12
Please enter a number:13
Please enter a number:14
Please enter a number:15
The sum of all numbers entered is 65.
There are 5 numbers that are more than 10 entered.
```

Figure 4(d)3

[8 marks]

End of Paper